UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,738	12/18/2001	Jerome Leloup	SP00-357	5054

22928 7590 11/18/2002

CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER
DOROSHENK, ALEXA A

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 11/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/029,738	LELOUP ET AL.	
	Examiner	Art Unit	
	Alexa A. Doroshenk	1764	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 May 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2 & 4*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the laterally offset catalyst sections must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5 and 9 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, the term "laterally offset" is unclear as to how it is a different position (if any) from "rotationally offset" catalyst sections. Since no drawings have been provided to distinguish the two terms from each other, the examiner has treated the claim as wherein the channel walls are offset laterally with respect to the flow axis.

In claim 9, the term "co-current" is unclear as only one stream has been recited. This raises the question, co-current to what? For examination purposes, the examiner has treated the claim as wherein the flow is in a single direction.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ruff et al. (3,208,131).

With respect to claim 1, Ruff et al. discloses a reactor comprising:

a reactor vessel (7);

a catalyst bed within the vessel (7) comprising two or more sections of structured honeycomb catalyst (4R and 4L) wherein the sections are disposed flow-connected end-to-end (col. 5, lines 45-49 and figures 2 & 4);

each section having inlet and outlet ends, a plurality of parallel open-ended honeycomb channels bounded by catalytically active wall surfaces (col. 2, lines 53-58), wherein the channels of each section are oriented along a common flow axis (see figure 4); and

the channels of the second section (4R) being offset from the first section (4L) such that at least a majority of the channels in the first section have outlet ends opening onto at least one channel wall segment and at least two adjoining channel openings at the inlet end of the second catalyst section (see figure 4).

With respect to claim 2, Ruff et al. discloses wherein the channels of the first catalyst section and the second catalyst section are of substantially the same size and cross-sectional shape (col. 5, lines 50-54).

With respect to claims 4 and 5, Ruff et al. discloses wherein the channels of the second section (4R) are rotationally and laterally (as defined by the examiner in the 35 USC 112 rejection above) offset from the channels in the first section (4L).

With respect to claim 6, Ruff et al. discloses wherein a channeled separator (5) is positioned between two sections.

With respect to claims 7 and 8, Ruff et al. discloses all of the structural limitations as presented with regard to claim 1. As to the method limitations, Ruff et al. further discloses the flow through the apparatus (col. 4, lines 45-63) wherein a stream is introduced to the vessel (col. 6, lines 44-45), directed through the honeycomb channels, catalyst activates (col. 2, lines 53-58), the stream is subdivided into parallel channels (col. 4, lines 45-63) and discharged (inherent in the design of the apparatus).

With respect to claim 9, the stream flow path is only disclosed by Ruff et al. as being in a single direction (col. 5, lines 45-75) and therefore reads on a co-current downflow mode.

6. Claims 1, 3-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hervert et al. (3,785,781).

With respect to claim 1, Hervert et al. discloses a reactor comprising:

a reactor vessel (2);

a catalyst bed within the vessel (27) comprising two or more sections of structured honeycomb catalyst wherein the sections are disposed flow-connected end-to-end (col. 3, lines 46-59);

each section having inlet and outlet ends, a plurality of parallel open-ended honeycomb channels (col. 4, lines 13-16) bounded by catalytically active wall surfaces (col. 3, lines 46-47), wherein the channels of each section are oriented along a common flow axis (see figure 4); and

the channels of the second section being offset from the first section such that at least a majority of the channels in the first section have outlet ends opening onto at least one channel wall segment and at least two adjoining channel openings at the inlet end of the second catalyst section (see figure 1).

With respect to claim 3, Hervert et al. discloses wherein the channels of the first catalyst section and the second catalyst section are of differing size (col. 5, lines 38-43) and cross-sectional shape (col. 4,lines 35-36).

With respect to claims 4 and 5, Hervert et al. discloses wherein the channels of the second section are rotationally and laterally (as defined by the examiner in the 35 USC 112 rejection above) offset from the channels in the first section (see figure 1).

With respect to claims 7 and 8, Hervert et al. discloses all of the structural limitations as presented with regard to claim 1. As to the method limitations, Hervert et al. further discloses introducing a stream into the vessel (col. 3, lines 38-39), directing the steam past the inlet through the channels (col. 3,lines 46-59), catalyst activates (col.

3, lines 46-47), the stream is subdivided into parallel channels (col. 6, lines 36-40) and discharged (col. 3, line 39).

With respect to claim 9, the stream flow path is only disclosed by Hervert et al. as being in a single direction (col. 2, lines 15-29) and therefore reads on a co-current downflow mode.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruff et al. (3,208,131) as applied to claim 1 above, and further in view of Hervert et al. (3,785,781).

Ruff et al. discloses the apparatus, as described above, but is silent as to the channels of the various catalyst sections being of differing size and/or cross-sectional shape.

Hervert et al. discloses a similar catalytic reactor with a plurality of offset honeycomb catalyst sections and wherein the sections have differing channel size as well as cross-sectional shape (col. 54, lines 33-65). Hervert et al. further discloses the advantages to such differences as maintaining mechanical strength (col. 5, lines 54-60) as well as discloses that the channel diameter is a result effective variable (col. 5, lines 59-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to differ the size and or shape of the channels in adjacent sections of the Ruff et al. vessel in order to achieve mechanical strength of the device or to vary the channel size (without undo experimentation) in order to achieve specific design objectives as taught by Hervert et al.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hervert et al. (3,785,781).

Hervert et al. discloses wherein the channels in adjacent sections can be of any size and shape (col. 4, lines 35-36), thus not precluding the size and shape from being

the same in adjacent section. Additionally, Hervert et al. recognizes that the size and shape of the channels are result effective variables (col. 5, lines 33-65). It has been held that to modify a known result effective variable is an obvious variation of a know device. In re Boesch.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hervert et al. (3,785,781) as applied to claim 1 above, and further in view of Ruff et al. (3,208,131).

Hervert et al. disclose all of the structural elements as discussed with regard to claim 1 above, but does not disclose a channeled separator between to sections.

Ruff et al. discloses a similar catalytic reactor with a plurality of offset honeycomb catalyst sections and teaches a channeled separator (5) between adjacent sections and teaches wherein such a spacer provides further change in the turbulent action of the stream flowing there through (col. 5, lines 63-75). It would have been obvious to one of ordinary skill in the art at the time the invention was made provide spacers between the catalyst sections of Hervert et al. in order to provide further turbulent action, as taught to be desired in such a device by Ruff et al.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 703-305-0074. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone

numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

AAD
November 14, 2002